Dynamical Adaptation in ORNs

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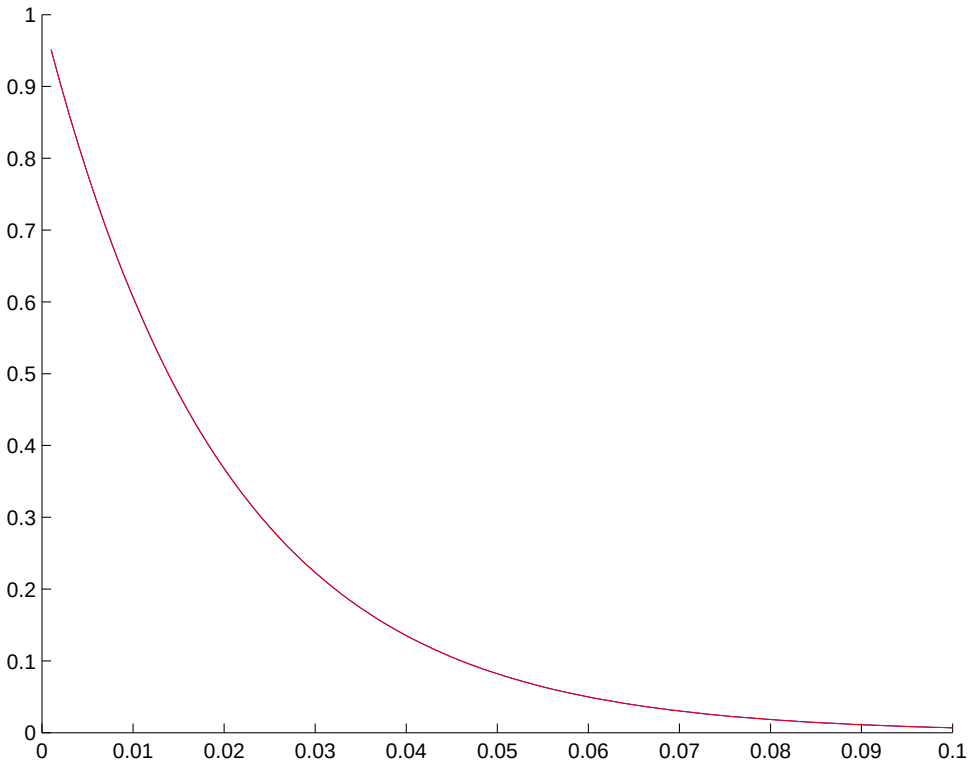
Why is the Slope not 1?

The best fit line to the prediction from a linear filter and the data should be 1. But it isn't.

First we make an Gaussian noise input and create an exponential filter, and make the output by convolving the filter with the input.

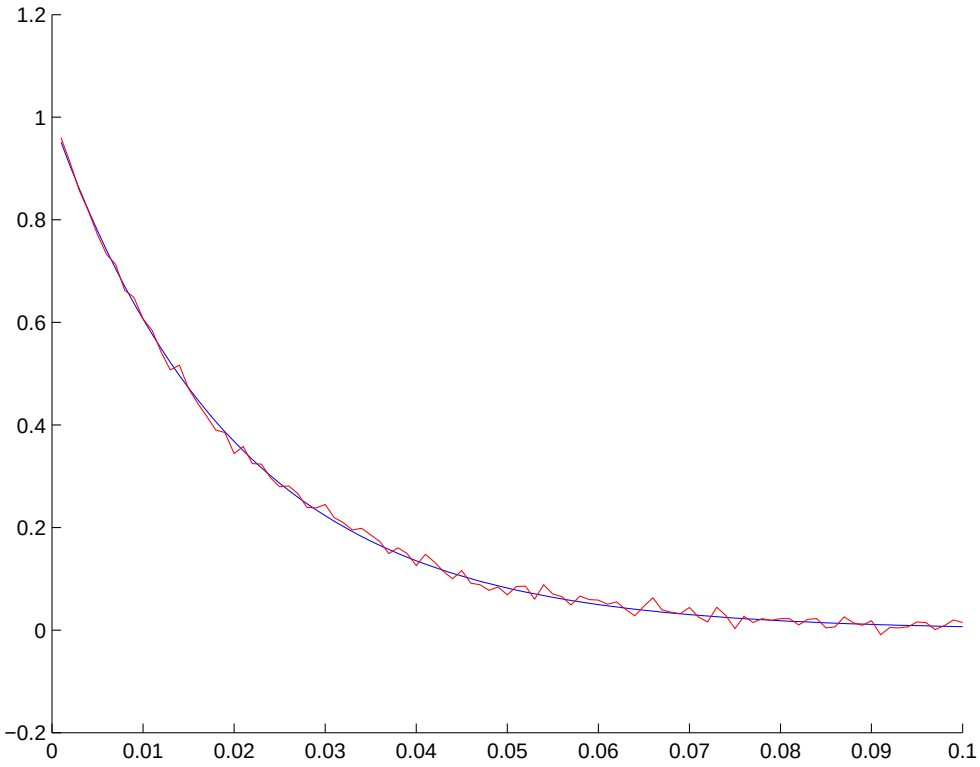
We can now reconstruct the filter:


1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1

and the slope of best fit is:

```
1.0000
```

Now, we add some Gaussian noise to the output.


1.2
1
0.8
0.6
0.4
0.2
0
−0.2
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1

and the slope of best fit is:

```
1.0003
```

but if we calculate the inverse slope, it is not the inverse of the slope:

```
0.9033
```

Very strange, but that concludes the slope problem.